

Applicant:
PCT App. No.:

Kari Hasanen et al.
PCT/IB00/00732

40B1 12. A method for positioning a shoe of a shoe press/shoe calender in a paper machine comprising the steps of:

measuring the position of the shoe of the shoe calender/shoe press; and
controlling the position of the shoe based on the results of the measurement so as
to be as desired in the direction of nip compression.

13. The method of claim 12 wherein the position of the shoe is measured by at least two position measuring sensors.

34 14. The method of claim 13 wherein the shoe has a driving side edge and a tending side edge, and wherein the position of the shoe is measured by a position measuring sensor close to the driving side edge, and a position sensor close to the tending side edge.

36B2 15. The method of claim 14 wherein a position sensor is located in the middle of the machine, and the position of the shoe is measured by the position measuring sensor close to the driving side edge, the position measuring sensor close to the tending side edge, and the position sensor located in the middle of the machine.

A1 5 16. The method of claim 12 wherein the movement of the shoe is regulated based on the measurement results utilizing a computing algorithm, and hydraulic cylinders of the shoe of the shoe press/shoe calender are controlled to operate such that the shoe moves in a desired manner to a desired position.

36B3 17. The method of claim 12 wherein the shoe is controlled to be closed into the nip formed against a backing roll/thermoroll in a manner that is optimal with respect to the running situation, advantageously in a desired position and/or at a desired speed.

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3b33 18. An arrangement for positioning a shoe of a shoe press/shoe calender in a paper machine comprising:

a shoe roll, having a shoe and hydraulic cylinders connected thereto for moving the shoe;

at least two measuring devices for measuring the position of the shoe; and

means for controlling the position of the shoe based on the results obtained by means of the measuring devices so as to be as desired in the direction of nip compression.

19. The arrangement of claim 18 wherein the at least two measuring devices comprise position measuring sensors placed close to a tending side edge of the paper machine and a driving side edge of the paper machine.

20. The arrangement of claim 19 further comprising a position measuring sensor placed in the middle of the paper machine between the tending side edge and the driving side edge.

21. The arrangement of claim 19 further comprising means for moving the hydraulic cylinders based on the results of the measurement in order to position the shoe in a desired position.

22. The arrangement of claim 18 further comprising a unit in which a computing algorithm is carried out based on the results of the measurement in order to give flow instructions to hydraulic valves which control the hydraulic cylinders such that the hydraulic cylinders move the shoe to a desired position.

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36B4 23. An apparatus in a paper machine comprising:
a backing roll;
a shoe;
a belt within which the shoe is positioned, the shoe being loaded against the backing roll to define a nip by a plurality of hydraulic cylinders;
a frame extending within the belt, the hydraulic cylinders supporting the shoe on the frame;
at least two position measuring sensors arranged in connection with the shoe between the shoe and the frame, the sensors measuring the position of the shoe and producing position measurements; and
a processing unit which receives the position measurements from the position measuring sensors, the processing unit generating signals which control the hydraulic cylinders to move the shoe as desired in the direction of nip compression.

24. The apparatus of claim 23 wherein the at least two position measuring sensors comprise:

- a position measuring sensor placed close to a tending side edge of the paper machine;
- a position measuring sensor placed close to a driving side edge of the paper machine; and
- a position measuring sensor placed in the middle of the paper machine.

REMARKS

Claims 12-24 remain pending in the application.